

CLAIMS:

1. An encoding method for the compression of a video sequence divided in groups of frames decomposed by means of a three-dimensional (3D) wavelet transform leading to a given number of successive resolution levels, said method being based on the hierarchical subband encoding process called "set partitioning in hierarchical trees" (SPIHT) and leading from the original set of picture elements (pixels) of the video sequence to wavelet transform coefficients encoded with a binary format, said coefficients being organized in trees and ordered in partitioning subsets -corresponding to respective levels of significance- by means of magnitude tests involving the pixels represented by three ordered lists called list of insignificant sets (LIS), list of insignificant pixels (LIP) and list of significant pixels (LSP), said tests being carried out in order to divide said original set of pixels into said partitioning subsets according to a division process that continues until each significant coefficient is encoded within said binary representation, and sign bits being also put in the output bitstream to be transmitted, said method being further characterized in that, for the estimation of the probabilities of occurrence of the symbols 0 and 1 in said lists at each level of significance, four models, represented by four context-trees, are considered, these models corresponding to the LIS, LIP, LSP and sign, and a further distinction is made between the models for the coefficient of luminance and those for the chrominance, without differentiating the U and V coefficients.

2. An encoding method according to claim 1, in which, for the encoding of each bit, a context formed of d bits preceding the current bit and different according to the model considered for said current bit is used, said contexts being distinguished for the luminance coefficients, the chrominance ones - while differentiating the U and V planes - and for every frame in the spatio-temporal decomposition, these contexts being gathered in a structure depending on the type of symbols, coming from the LIS, LIP, LSP or from the sign bitmap, on the color plane Y, U, or V, and on the frame in the temporal sub-band.

3. An encoding method according to claim 2, in which a representation of said contexts is a three-dimensional structure CONTEXT filled with the sequences of d last bits examined in each case :

CONTEXT [TYPE] [chroma] [n°frame] where TYPE is LIP_TYPE, LIS_TYPE,

5 LSP_TYPE, or SIGN_TYPE, and chroma stands for Y, U, or V.

09.07.2001 09:40:00